

STATE OF WASHINGTON  
DEPARTMENT OF NATURAL RESOURCES

ROAD PLAN

Name of Sale Rattlesnake Thinning

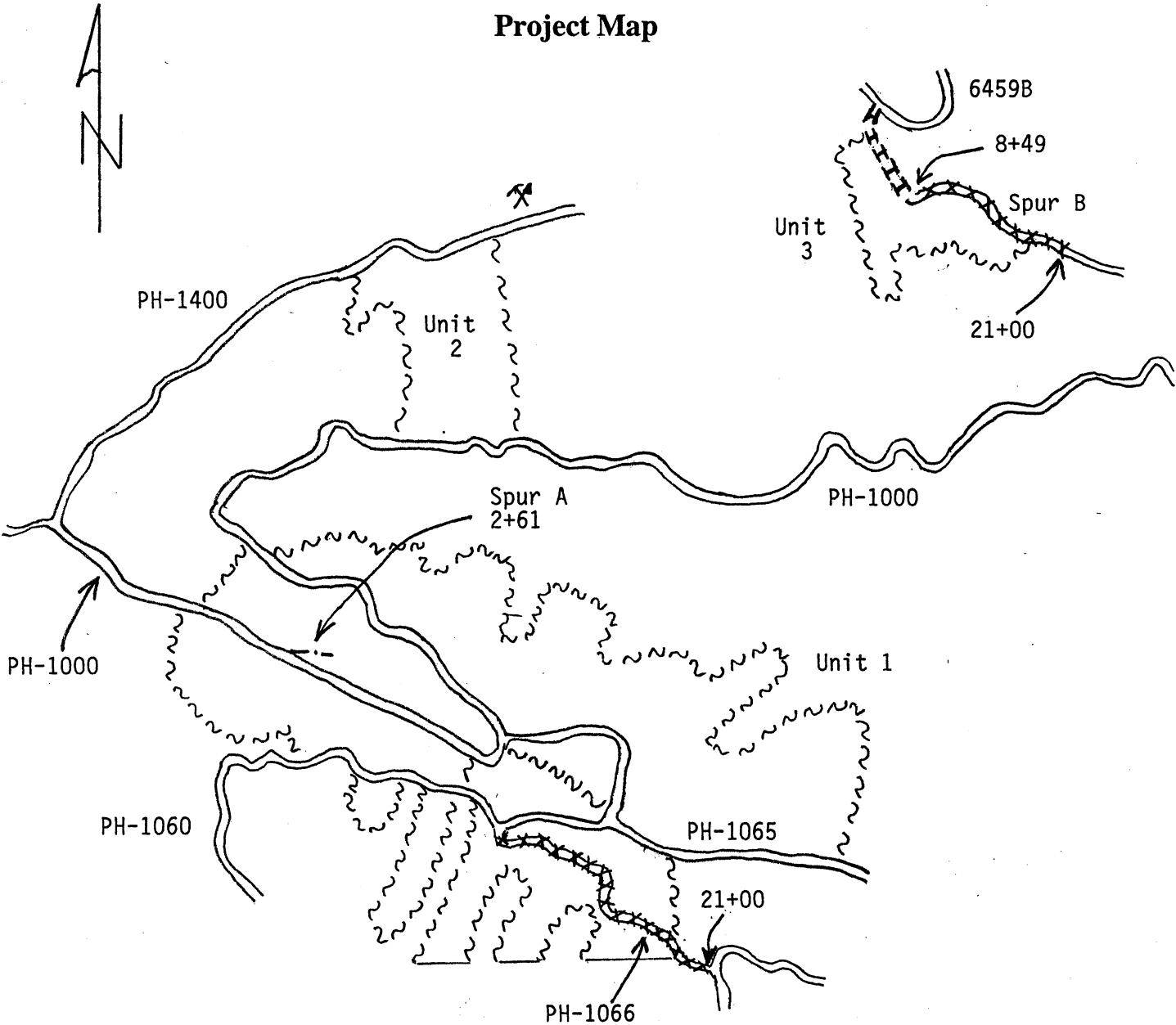
Southwest Region

Application No. 75474

County Cowlitz

Section 16,17 Township 6 North, Range 2 East, W.M.

**Project Map**



**Legend**

- Existing Roads
- Optional Reconstruction
- Optional Construction
- Required Abandonment
- Sale Boundary tags
- Rock Pit

Scale: 1" = 1000'

Date: 10/15/03

Road Plan

Sheet *1* of *13*

**ROAD PLAN**

SALE NAME: Rattlesnake Thinning

ROAD PLAN DATE: 10/15/03

**SECTION 1 - GENERAL CLAUSES**

1.1-1  
Clauses in this plan apply to all construction or reconstruction including landings unless otherwise noted.

1.1-2  
Construction or reconstruction of the following road/s is required. All roads shall be constructed or reconstructed on the State's location and in accordance with this Road Plan.

<u>Road</u>	<u>Length</u>	<u>Type</u>
PH-1065	MP 0.7	Culvert Repair

1.1-3  
Construction or reconstruction of the following road/s is not required. Roads used by the Purchaser shall be constructed or reconstructed on the State's location and in accordance with this Road Plan.

<u>Road</u>	<u>Stations</u>	<u>Type</u>
Spur A	0+00 to 2+61	Construction
Spur B	0+00 to 8+49	Reconstruction

1.1-4  
If the Purchaser desires a road location or design change, a written request shall be submitted to the State for consideration.

1.1-5  
On this plan quantities are minimum acceptable values. Additional quantities required by the State because of hidden conditions or Purchaser's choice of construction season or techniques shall be at the Purchaser's expense. Hidden conditions include, but are not limited to: solid subsurface rock, subsurface springs, saturated ground, and unstable soil.

1.2-1  
The construction or reconstruction of all roads specified herein shall not be permitted between October 1 and April 30 unless authority to do so is granted, in writing, by the Contract Administrator.

1.2-2  
Purchaser shall not use roads constructed or reconstructed under this Road Plan for hauling, other than timber cut on the right-of-way, without written approval from the Contract Administrator.

1.2.1-1  
Pioneering shall not extend past construction that will be completed during the current construction season. Drainage shall be provided on all uncompleted construction as approved, in writing, by the Contract Administrator.

Clearing and grubbing shall be completed prior to starting excavation and embankment.

Culvert placement in live streams shall precede embankment where culverts are to be placed along natural ground.

Culverts shall be installed in completed subgrade as construction progresses.

Subgrade, ditches, and culvert installations shall be completed and are subject to written approval by the

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Contract Administrator prior to rock application.

- 1.3-1  
The following roads are intended for dry weather use. Hauling shall be suspended when wheel track rutting exceeds 6 inches unless Purchaser elects to correct the situation at his/her own expense. Corrective measures and continued operations are subject to written approval by the Contract Administrator.

<u>Road</u>	<u>Stations</u>
Spur A	0+00 to 2+61 (Only if ballast not applied).
Spur B	0+00 to 8+49

- 1.5-1  
Maintenance on roads listed in Contract Clauses C-50 (Purchaser Road Maintenance and Repair) and C-60 (Designated Road Maintainer) shall be performed in accordance with Forest Access Road Maintenance Specifications.
- 1.5-3  
Snowplowing will be permitted only after execution of a "Snow Plowing Agreement", which is available from the contract administrator upon request.

**SECTION 2 - CLEARING**

- 2.1-1  
On Spur A, fell all vegetative material larger than 6 inches DBH or over 20 feet high for 20 feet on each side of centerline
- 2.1-3  
Right-of way timber shall not be decked within the grubbing limits or in locations that interfere with construction of the road prism or impede drainage.

**SECTION 3 - GRUBBING**

- 3-3  
Removal of stumps shall not be required ,provided that they are cut flush with the ground.

**SECTION 4 - DEBRIS DISPOSAL AND REMOVAL**

- 4.1-1  
Right-of way debris is defined as all vegetative material larger than one cubic foot in volume, within the clearing limits
- 4.2.3-3  
Right-of-way debris shall not be placed against standing timber.
- 4.2.3-4  
Right-of-way debris shall be scattered .

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**SECTION 5 - EXCAVATION**

5.1-1  
Unless controlled by construction stakes or specific design sheets herein, roads shall be constructed or reconstructed in accordance with dimensions shown on the TYPICAL SECTION SHEET.

5.1-3  
Road grade and alignment shall conform to the State's marked location. Grade and alignment shall have smooth continuity without abrupt changes in direction. Maximum grades are 18 percent favorable and 12 percent adverse or as specified on drawings. Minimum radius curve is 60 feet.

5.1-8  
Excavation slopes shall be constructed no steeper than shown on the following table (except as construction staked or designed.):

<u>Material Type</u>	<u>Excavation Slope Ratio</u>
Common Earth (on side slopes of 55%).....	1:1
Common Earth (55% to 70% sideslopes) .....	3/4:1
Common Earth (on slopes over 70%) .....	1/2:1
Fractured or loose rock.....	1/2:1
Hardpan or solid rock .....	1/4:1

5.1-9  
Excavation and embankment slopes shall be constructed to a uniform line and left rough for easier revegetation.

5.1-10  
Embankments shall be widened as follows:

<u>Height at Centerline</u>	<u>Subgrade Widening</u>
Less than 6 feet	2 feet
6 feet or over	4 feet

5.1-11  
Embankment slopes shall be constructed no steeper than shown on the following table:

<u>Material Type</u>	<u>Embankment Slope Ratio</u>
Common Earth and Rounded Gravel.....	1 1/2:1
Angular Rock.....	1 1/4:1
Sandy Soils .	2:1

5.1-12  
Organic material shall be excluded from embankment and from waste material deposited on slopes in excess of 40 percent.

5.1-14  
Where side slopes exceed 45 percent, full bench construction shall be utilized for the entire subgrade width .

5.1-15  
Waste material may be deposited adjacent to the road prism on side slopes up to 45 percent if the waste material is compacted and more than 50 feet away from live streams. On side slopes over 45 percent, all excavation shall be end hauled or pushed to designated embankment sites. All waste embankments shall be compacted in horizontal layers not exceeding 2 feet.

5.1-21  
Waste material shall not be deposited within 50 feet of a live stream.

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- 5.2-1  
Road pioneering operations shall not undercut the final cut slope, deposit excavated material outside the right-of-way limits, or restrict drainage.
- 5.3-1  
All embankment and waste material shall be compacted. The minimum acceptable compaction is achieved by placing embankments in 2 foot or shallower lifts and routing excavation equipment over entire width of the lifts. Side hill embankments too narrow to accommodate excavation equipment may be placed by end-dumping or side casting until sufficiently wide to support the equipment.
- 5.4-1  
Silt-bearing runoff shall not be permitted to go into streams.
- 5.4-2  
Accomplish sediment removal through silt traps, silt fences, settling ponds, or other methods as approved, in writing, by the Contract Administrator.
- 5.4-3  
Purchaser shall furnish and evenly spread the seed and fertilizer mixture listed below on all exposed soil inside the grubbing limits at a rate of 40 pounds per acre. The date of application is subject to approval by the Contract Administrator.

<u>Mixture Percent by Weight</u>	<u>Minimum Percent Germination</u>
50% Fescue, Red	90% Germination
25% Ryegrass, Perennial	90% Germination
15% Bentgrass	85% Germination
10% Clover, White	90% Germination

- Weed seed shall not exceed 0.5% by weight.
- Fertilizer shall be applied at the rate of 100 pounds per acre and shall consist of 16-16-16 or other approved balanced mix.
- 5.5-5  
Finished subgrade shall be outsloped as shown on the TYPICAL SECTION SHEET, and shall be uniform, firm, rut-free, and shaped to ensure surface runoff in an even, unconcentrated manner.

**SECTION 6 - DRAINAGE**

- 6.1-1  
Road surfaces shall be outsloped at 6 inches in 10 feet. On the PH-1065 road, Purchaser shall cut off the end of the existing culvert (as marked). Construct energy dissipator (or attach 10 ' flume).

**SECTION 7 - ROCK**

- 7.1-1  
Rock used under this contract may be obtained from the following source/s on State land as listed below at no charge to the Purchaser.

<u>Source</u>	<u>Location</u>	<u>Rock Type</u>
1. PH-1400 pit	Sec.16 (6-2E)	Ballast

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- 7.1-5  
Use of rock sources not listed in this section is subject to written approval from the contract administrator.
- 7.2-1  
All pit operations shall be performed as directed by the contract administrator and in accordance with the Pit Development and Reclamation Plan/s.
- 7.2.1-1  
Rock shall meet the following specifications for gradation when placed on the subgrade:
- No more than 10% of the rock shall be larger than 8 inches in any dimension and no rock shall be larger than 12 inches in any dimension.
- 7.4.2-1  
Apply at least the minimum required rock quantity as shown on ROCK LIST. Rock application on Optional Roads is not required as long as hauling is done during dry weather conditions. If the Purchaser elects to haul during wet weather conditions, then rock shall be applied per the Rock List.
- 7.4.2-8  
Each lift of rock shall be outslopped as shown on TYPICAL SECTION SHEET, and shall be uniform, firm, rut-free, and shaped to ensure surface runoff in an even, unconcentrated manner.

**SECTION 9 - ROAD AND LANDING CLOSURES**

- 9.1-1  
The following road/s shall be closed by the purchaser within 10 days following completion of timber harvest. All road abandonment shall be in accordance with Forest Practice Regulations.

<u>Road</u>	<u>Stations</u>
Spur A	0+00 to 2+61
Spur B	0+00 to 21+00
PH-1066	0+00 to 21+00

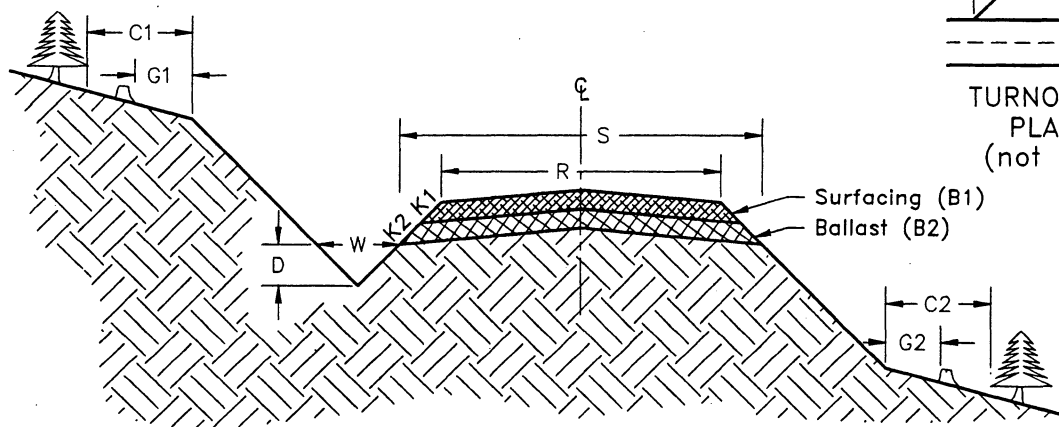
- 9.1-2  
Closure shall consist of:
1. Constructing waterbars in accordance with waterbar detail at a maximum spacing of 100' or no more than a 10' vertical drop between waterbars.
  2. Skewing waterbars at least 30 degrees from perpendicular to the road centerline.
  3. Construction of road closure trenches in conformance with the "Road Closure Trench Detail".
  4. Removal of culverts and disposal from State Land.
  5. Providing grass seed and fertilizer on all exposed soil per Clause 5.6-2.

- 9.2-1  
Purchaser shall reduce or relocate landing debris, in a manner approved by the Contract Administrator, to avoid landing failures and potential debris slides.

## ROAD PLAN

ROAD PLAN DATE: 10/15/2003

Surfacing (B1)  
Ballast (B2)



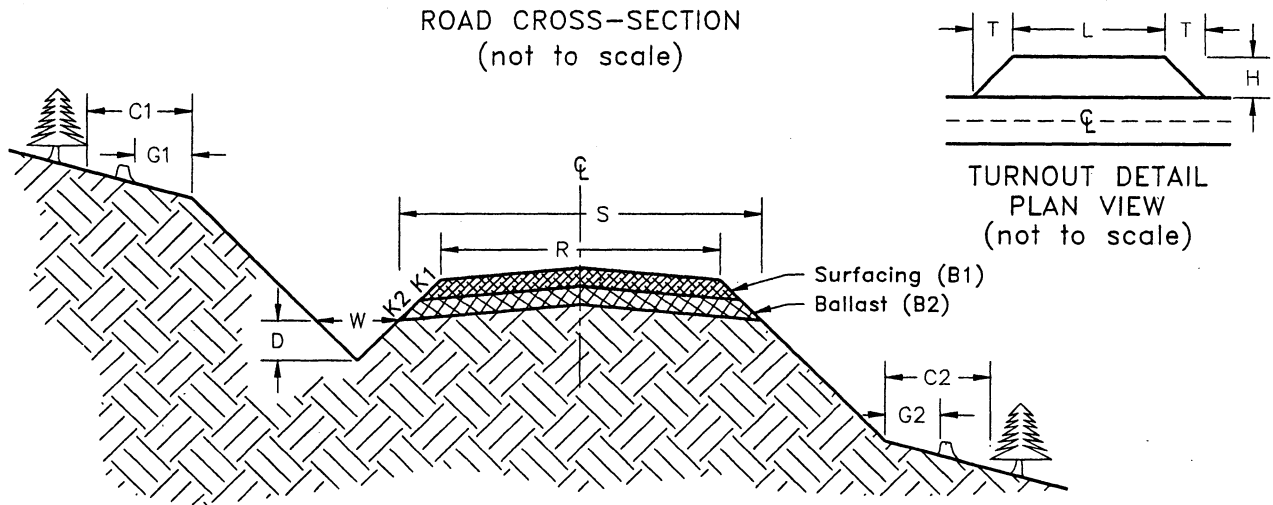
# TYPICAL SECTION SHEET

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ROAD PLAN

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ROCK LIST

BALLAST

Road Number	From Station	To Station	Rock Slope	Rock Depth	C.Y./ Station	# of Stations	C.Y. Subtotal	Rock Source	Turnout		
									Length	Width	Taper
			K2	B2					L	H	T
Spur A Landing	0+00	2+61	1:1	18"	64	2.61	167	1.			
					75	1	75	1.			

BALLAST TOTAL 242 Cubic Yards

SURFACE

Road Number	From Station	To Station	Rock Slope	Rock Depth	C.Y./ Station	# of Stations	C.Y. Total	Rock Source
			K1	B1				

SURFACE TOTAL \_\_\_\_\_ Cubic Yards

Rock application on optional roads is not required as long as hauling is done during dry weather conditions. If the Purchaser elects to haul during wet conditions, then rock application will be required.



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SR - Shot Rock  
NT - Native (bank run)  
SL - Select Fill  
HL - Heavy Loose Riprap  
LL - Light Loose Riprap  
Flume - Half round pipe  
Downspout - Full round pipe

STATE OF WASHINGTON  
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FOREST ACCESS ROAD  
MAINTENANCE SPECIFICATIONS

1. CONSTRUCTION AND RECONSTRUCTION (Prior to acceptance to the contract or acceptance on a timber sale).

A. Cuts and Fills

1. Maintain slope lines as constructed. Remove slides from the ditches and roadway. Replace fills to 12:1 slopes with selected material or as directed. Remove overhanging material from the cut slopes.
2. Material from slides or other sources requiring removal shall not be deposited in streams or at locations where it will erode into streams or water courses.
3. Undesirable slide materials and debris shall not be mixed into the surface material.

B. Surface

1. Grade and shape the road surface, turnouts, and shoulders to the original crown, inslope or outslope as directed to provide suitable traveled surface and surface water runoff in an even, unconcentrated manner.
2. Blading must not undercut the backslope at the bottom of the ditchline or cut geotextile at centerline.
3. Watering may be required to control dust and to retain fine surface rock.
4. Desirable surface material shall not be bladed off the roadway.
5. Replace surface material lost or worn away.
6. Remove berms except as directed by the State.
7. Barrel spread soft spots to prevent degradation of geotextile.

C. Drainage

1. Keep ditches and drainage channels at outlets and inlets of culverts clear of obstructions and functioning as intended.
2. Inspect and clean culverts at least monthly, with additional inspections during storms and periods of high runoff. This must be done even during periods of inactivity.
3. Add stable material at the outlet end of the culvert as needed to stabilize the stream bed.
4. Headwalls: maintain to the road shoulder level with material that will resist erosion.
5. Keep silt bearing surface runoff from getting into live streams.

D. Structures

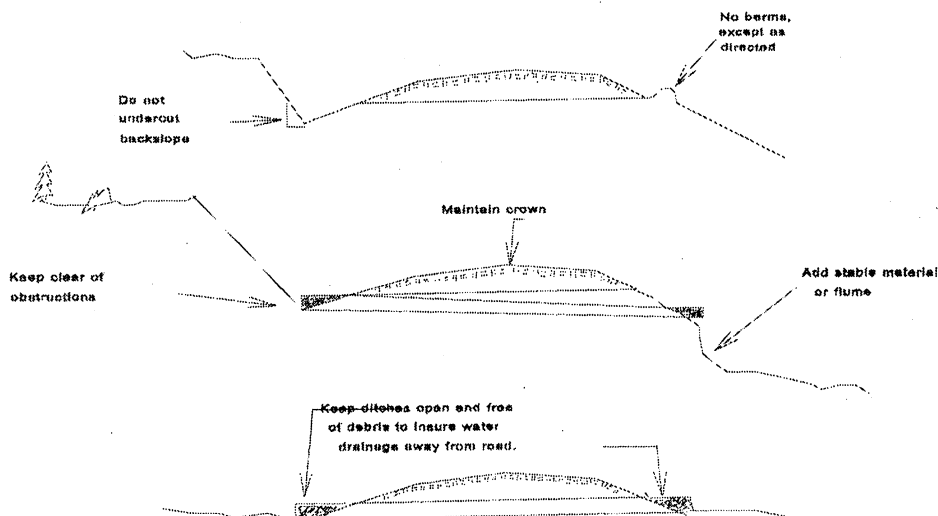
Repair bridges, culverts, cattleguards, fences, and other road structures to the condition required by the construction specifications.

E. Termination of Use or End of Season

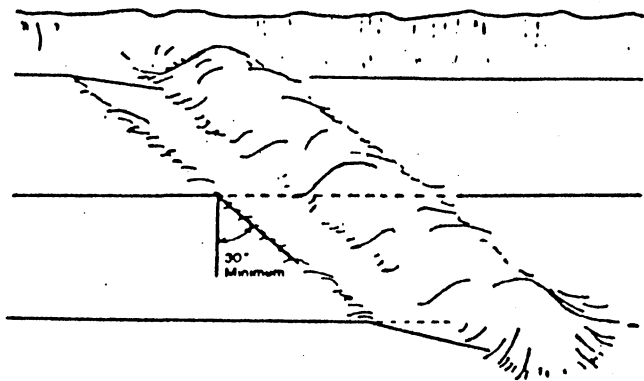
Do maintenance work to minimize damage from the elements such as blading to insure correct runoff, ditch, and culvert cleaning and water bars.

F. Debris

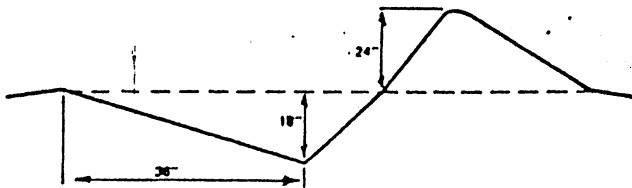
Remove fallen timber, limbs, and stumps from the slopes or roadway.



WATER BAR DETAIL

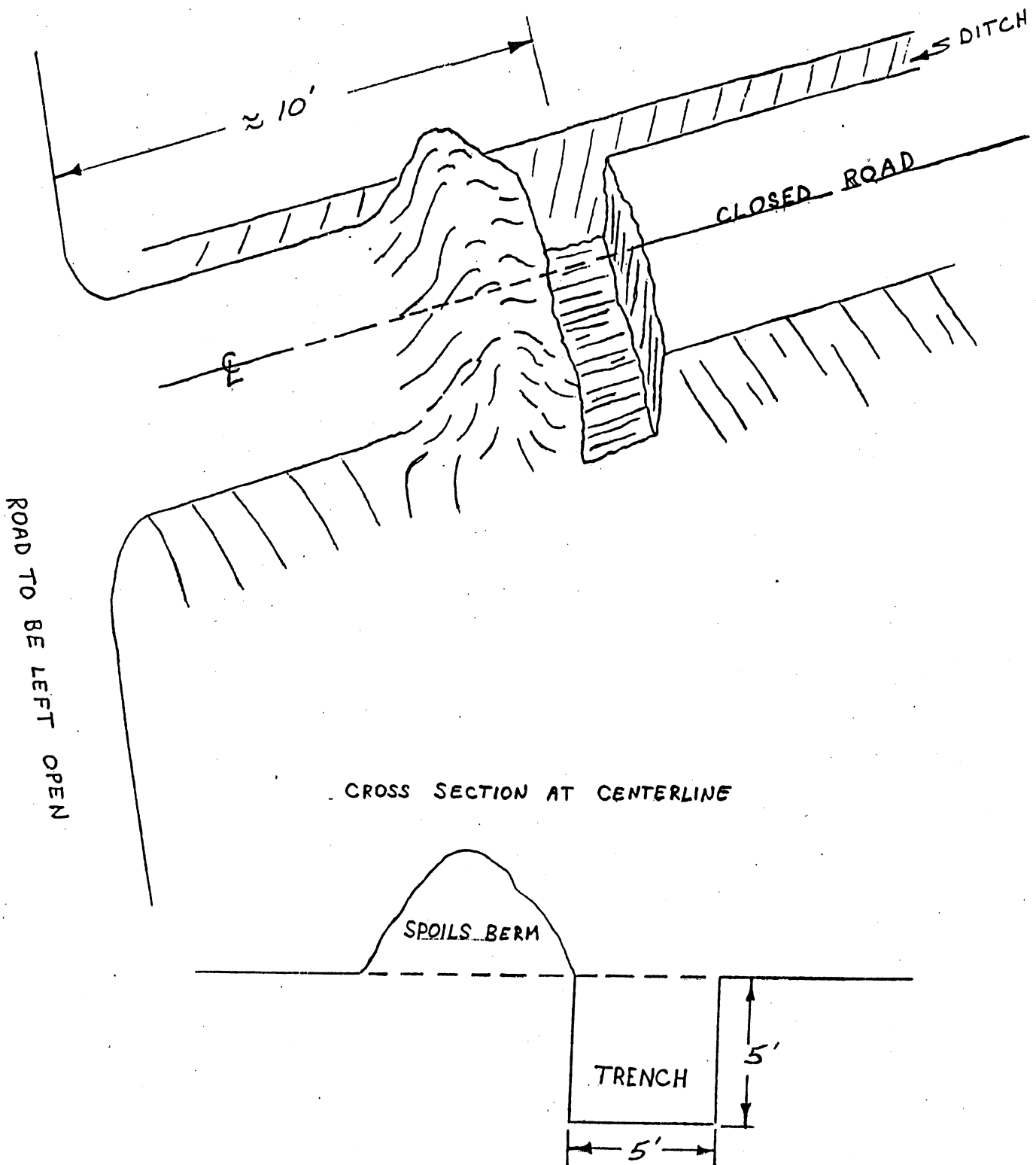


CROSS SECTION AT CENTER LINE



DATE 10/15/03	CONTRACT NO. 75474	PROJECT RATTLESNAKE THINNING	SHEET 11 OF 13
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Road Closure Trench Detail



DATE 10/15/03	CONTRACT NO. 75474	PROJECT RATTLE SNAKE THINNING	SHEET 12 OF 13
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## MINIMUM PIT DEVELOPMENT AND RECLAMATION SPECIFICATIONS

### (A) DEVELOPMENT

- 1) Pit location is shown on Road Plan and Timber Sale map.
- 2) Minimum clearing distance from the pit edge shall be 75% of the height of the tallest tree.
- 3) The pit floor shall be developed so as to provide a smooth, neat and well drained condition.
- 4) The first face shall have the overburden stripped back a minimum of 15 feet from the pit edge. There shall be no overhangs.
- 5) Overburden shall be deposited as approved by the State Representative.
- 6) Oversize shall be deposited within the pit site area in a place designated by the State Representative.
- 7) Stockpiling operations shall be accomplished in the area as approved by the State Representative. All stockpiled materials shall be maintained in a neat and presentable condition.

### (B) RECLAMATION

- 1) Upon completion of operations in the pit, the area will be left in a condition that will not endanger public safety, damage property, or be hazardous to animal or human life.
- 2) The pit floor and the stockpile floor shall be left in a smooth and neat condition, out sloped a minimum of 2% to provide site drainage.
- 3) The pit area shall be worked and left in condition that future operations may proceed in an orderly manner.
- 4) Upon completion of operations, the site shall be cleared of all temporary structures, equipment, and rubbish, and shall be left in a neat and presentable condition.

DATE	CONTRACT NUMBER	PROJECT	
10/15/03	75474	RATTLESNAKE THINNING	SHEET 13 OF 13

**ROAD COST SUMMARY**

**Sale Name** Rattlesnake Thinning **Agr. No. 30-0 75474**  
**Compiled by** Stan Ross **Date** 10/15/03

	<u>Road Cost</u>
Road No. <u>Spur A</u>	\$ <u>3,846.64</u>
Road No. <u>Spur B</u>	\$ <u>3,634.00</u>
Road No. <u>PH-1065</u>	\$ <u>230.00</u>
Road No. <u>PH-1066</u>	\$ <u>1,150.00</u>
Road No. _____	\$ <u>          </u>
Total	\$ <u>8,860.64</u>

Sale Volume 1,521 \$/Mbf 5.83

ROAD COSTING FORM

Sale Name

Rattlesnake Thinning

Agr. No. 30- 75474

Road No.

Spur A

Compiled by

Stan Ross

Date

October 15, 2003

No. of Stations

2.61

R/W Width

CLEARING & GRUBBING

Cat days:

0.5

@

\$

1000.00

=

\$

500.00

Excavator days

0.5

@

\$

1000.00

=

\$

500.00

Revegetation:

3

@

\$

20.00

=

\$

60.00

\$ 1,060.00

EXCAVATION

Cat days:

0.5

@

\$

1000.00

=

\$

500.00

Excavator days

@

\$

=

\$

Endhaul volume

@

\$

=

\$

\$ 500.00

BALLAST & SURFACING

Depth

yds/sta

X

stations

=

yards

UNIT COSTS	Ballast	Surfacing	Riprap
Drill & shoot			
Dig & load	0.90		
Purchase			
Haul	2.00		
Spread	0.30		
Compact	0.25		
Strip/Reclaim			
Crush			
Total	3.45		

Ballast Source: PH-1400 pit

Surface Source:

Riprap Source:

Ballast

242

yds @ \$

3.45

/yds = \$

834.90

Surface

yds @ \$

/yds = \$

Riprap

yds @ \$

/yds = \$

\$ 834.90

CULVERTS & FLUMES G-(Galvanized) P-(Plastic) ED-(energy dissipator) F-(flume)

Diam.

No.

Ga.

Type

Length

Cost/ft

Total

\$

ABANDONMENT

Excavator days

0.25

@

\$

1000.00

@

\$

\$ 250.00

OTHER

MOVE IN

Loader

@

\$

400.00

Trucks

@

\$

300.00

@

\$

@

\$

\$ 700.00

Cost per Station \$ 1473.81

GENERAL EXPENSES

Subtotal \$ 3,344.90

Subtotal X 1.15%

Total \$ 3,846.64

# ROAD COSTING FORM

**Sale Name** Rattlesnake Thinning **Agr. No. 30-** 75474 **Road No.** Spur B

Compiled by Stan Ross Date October 15, 2003

No. of Stations 21 R/W Width                     

## CLEARING & GRUBBING

Cat days:		@	\$	=	\$	
Excavator days	0.5	@	\$	=	\$	500.00
Revegetation:	8	@	\$	=	\$	160.00
						\$ 660.00

## EXCAVATION

<u>          </u>	Cat days:	<u>          1          </u>	@	\$	<u>      1000.00      </u>	=	\$	<u>      1000.00      </u>	
<u>          </u>	Excavator days	<u>                  </u>	@	\$	<u>                  </u>	=	\$	<u>                  </u>	
<u>Endhaul</u>	volume	<u>                  </u>	@	\$	<u>                  </u>	=	\$	<u>                  </u>	\$ <u>      1,000.00      </u>

## **BALLAST & SURFACING**

[illegible]

UNIT COSTS	Ballast	Surfacing	Riprap
Drill & shoot			
Dig & load			
Purchase			
Haul			
Spread			
Compact			
Strip/Reclaim			
Crush			
<b>Total</b>			

Ballast Source: \_\_\_\_\_  
Surface Source: \_\_\_\_\_  
Riprap Source: \_\_\_\_\_

Ballast	_____	yds @ \$ _____	/yds = \$ _____	
Surface	_____	yds @ \$ _____	/yds = \$ _____	
Riprap	_____	yds @ \$ _____	/yds = \$ _____	\$ _____

## CULVERTS & FLUMES

G-(Galvanized)      P-(Plastic)    ED-(energy dissipator)    F-(flume)

[illegible]

## ABANDONMENT

Excavator days	0.5	@	\$	1000.00	
		@	\$		\$ 500.00

OTHER

<b>MOVE IN</b>	Excav.	@	\$	500.00	
	Dozer	@	\$	500.00	
		@	\$		
		@	\$		\$ 1,000.00

Cost per Station \$ 173.05

<b>GENERAL EXPENSES</b>	<b>Subtotal \$</b>	<b>3160.00</b>	<b>Subtotal X 1.15%</b>	<b>Total</b>	<b>\$</b>	<b>3,634.00</b>
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